# **County of Loudoun**

## **Department of Planning**

#### **MEMORANDUM**

DATE:

November 15, 2007

TO:

**Loudoun County Planning Commission** 

FROM:

Nicole Steele

Project Manager, Land Use Review

SUBJECT:

November 20, 2007

**Planning Commission Committee of the Whole** 

CMPT 2007-0001, SPEX 2007-0001 - CWS White's Ferry

#### **Background**

On September 17, 2007, the Planning Commission held a public hearing regarding five proposed telecommunication facilities to be located in the rural Loudoun County region. There were numerous speakers for each of these applications who spoke with some in support of the facilities and the majority with issues and/or opposed to the facilities. Concerns were raised regarding potential visual impact, health risks, property values, alternative services or locations and general need for the facilities.

Specific to the CWS – White's Ferry site; six (6) members of the public commented on the application. Two (2) citizens supported the site, stating the need for public safety and convenience of cell and broadband service. The owner of the property provided information from the American Cancer Society stating that there are no adverse effects on public health from cell towers. Four (4) citizens opposed the site because of the visual impact to the neighbors, Route 15, a Scenic Byway, and the nearby historic properties. These citizens also questioned the effects of the towers on the surrounding property values. An exhibit was presented suggesting that the illustratives provided by the applicant, and contained within the staff report, were misleading and that the visual impact was going to be considerably greater than originally anticipated.

The Commission asked questions of staff and the applicant, and requested additional information on other telecommunications applications under review by the County, and requested copies of the May 25, 2007 Atlantic Group study and inventory of telecommunication facilities.

The Planning Commission closed the public hearing for the applications and voted 8-0-1 (Syska absent) to send each of the telecommunications applications to a future committee for further discussion. In addition, the Commission requested that a telecommunications consultant be obtained to explain the telecommunications industry requirements and needs, radio frequency coverages and to generally answer questions from the County regarding consideration of the telecommunication requests proposed.

County staff contacted Scott Bashore with the County Department of Information Technology, who agreed to attend an October 1, 2007 Commission work session. George Condyles IV, President/COO of The Atlantic Group of Companies, Inc. had been contacted and agreed to attend this work session to summarize a May 25, 2007 telecommunication facilities study and answer questions. At the October 1 Commission meeting, the Commission received an overview of the telecommunications industry from George Condyles. The Commission expressed strong interest in having each telecommunications application reviewed by a technical consultant for further detailed recommendations and requested that the staff contract for such services.

The County contracted with the Atlantic Group on October 15, 2007 and received individual technical reviews for the pending telecommunication applications. Attached is the White's Ferry technical review.

#### Issues

The following issues are identified from the September 17, 2007 Staff Report and are outlined below:

1. Staff and the applicant came to an agreement prior to the Planning Commission Public Hearing to remove language from the Conditions of Approval, Condition #7, which called for the monitoring and maintenance of existing mature vegetation along James Monroe Highway (Route 15). The current condition designates a 100-foot Landscape Buffer and Tree Save Area (TSA) along Route 15 and the intent of this condition is to mitigate the visual impact of the proposed facility on the roadway and adjoining properties. The applicant is relying on these existing trees to buffer views of the proposed facility from James Monroe Highway (Route 15), which is a designated State Scenic Byway, the Catoctin Rural Historic District, and Macaria, a historic residence. Staff concluded that it is not necessary to require annual maintenance and monitoring of this TSA.

The following issues are identified in the Atlantic Group study:

- 1. The Atlantic Group concluded that this application is unnecessary due to the Nextel-Rockland Farm application. The Atlantic study deemed the Rockland proposal superior to the White's Ferry application because of its appropriate stealth-design and it meets the Atlantic Group recommendation of a 750-foot setback to any residence.
- 2. The Atlantic Group recommendation of a 750-foot setback from any residence can not be accomplished on the White's Ferry site.
- 3. However, if the Planning Commission was to determine that this site has merit, the Atlantic Group recommends that this application should consist of only one (1) 90' monopine tower.
- 4. The Atlantic Group has requested a geotechnical and geophysical analysis of the development site due to the structural capacity of the surrounding limestone deposits.
- 5. The Atlantic Group has requested structural drawings for the towers.
- 6. The Atlantic Group has requested grounding specifications for the compound and tower.
- 7. The Atlantic Group has requested an interference study.

Staff notes that the consultant's comments regarding engineering and grounding plans are typically considered at a building permits stage of development. Comments regarding facility setbacks should be further discussed in the context of the County's policies and ordinances with consideration of the currency of these documents.

#### Recommendation

Staff recommends discussion of these outstanding issues along with an overall discussion of the ATC studies.

#### **Attachments**

- 1. Technical Review for White's Ferry by Atlantic Technology Consultants dated November 2, 2007
- 2. Conditions of Approval dated August 22, 2007

## **CONDITIONS OF APPROVAL** – August 22, 2007

- The proposed telecommunication facility shall be developed in substantial conformance with the Special Exception Plat dated December 1, 2006 and revised through August 13, 2007 prepared by Damiano Long Consulting Engineers, and the Loudoun County Zoning Ordinance. Approval of this application does not relieve the Applicant of any Zoning Ordinance, Codified Ordinance, or any other regulatory requirement.
- 2. No permanent outdoor lighting shall be permitted on the facility unless otherwise directed by the County.
- 3. The applicant shall make space available on the monopoles to the County for the collocation of an antenna and ancillary equipment by Loudoun County's Department of Fire and Rescue Services if so requested. The cost of all such equipment including installation costs shall not be the responsibility of the Applicant. The parties shall mutually agree to the location of the antenna and equipment on the facility.
- 4. The applicant shall design and maintain the monopoles and ground mounted equipment in substantial conformance with the elevation depicted on Damiano Long Consulting Engineers plat dated August 13, 2007. The monopoles shall have artificial branches mounted on the pole starting below the lowest antennas to the top of the structure, extending above the pole to conceal the lightning rod. The pole, or trunk, shall be painted a bark color.
- 5. The Applicant or its successors shall remove all unused related telecommunications facilities and ground equipment from the site, within 90 days of cessation of commercial public telecommunications use or the expiration of the ground lease, whichever occurs first, and restore the site as closely as possible to its original condition.
- 6. As part of the initial submittal of a site plan application for this development, the applicant will submit a geotechnical and geophysical analysis of the development site, consistent with standards in Chapter 6 of the Facilities Standards Manual. The analysis will be sealed by a certified professional engineer with experience in geophysical analysis.
- 7. The applicant shall utilize existing mature vegetation along James Monroe Highway (Route 15) to create a 100-foot Landscape Buffer which shall be designated as a Tree Conservation Area (TCA) in the location shown on the Special Exception plat. The TCA shall be inspected annually by a certified arborist for potential disease and insect damage for the duration of the commercial public telecommunication use and these reports shall

Planning Commission Committee meeting CMPT 2007-0001, SPEX 2007-0001 — CWS White's Ferry November 20, 2007 Page 5 of 5

be submitted to the County. The applicant and property owner reserves the right to remove, in consultation with the County Urban Forester, any dead, damaged, dying or diseased trees and vegetation in the TCA. The Applicant shall maintain the TCA equivalent to or greater than the required Type IV Buffer Yard with a minimum width of 100-feet.

NOTE: The applicant has agreed to a one-time contribution of \$1,000.00 for the telecommunication structures and antennas and an additional \$0.10 per square foot of gross floor area of equipment pads located within the compound for volunteer fire & rescue services. The \$1,000.00 contribution for the telecommunication structures and antennas will be paid to the County prior to issuance of the building permit for the monopoles. The \$0.10 per square foot of gross floor area for the equipment shelters will be paid at the issuance of the building permit for each individual equipment shelter.



# LOUDOUN COUNTY, VA TECHNICAL REVIEW

PROPOSED
NEW
(2) 90' STEALTH MONOPOLES
(EVERGREEN TREES)
By
COMMUNITY WIRELESS STRUCTURES
(CWS)

CWS Site # 101 White's Ferry CMPT 2007-0001 SPEX 2007-0001

# Submitted by:

# ATLANTIC TECHNOLOGY CONSULTANTS, INC.

A Member of The Atlantic Group of Companies

**ATC PROJECT #: 1025-16** 

November 2, 2007



### **EXECUTIVE SUMMARY:**

Community Wireless Structures ("CWS") of Falls Church, Virginia, has submitted an application to Loudoun County requesting a Special Exception and Commission Permit to construct two (2) 90' stealth monopoles ("monopines") on property owned by John D. and Carolyn G. Pepper located in the southeast quadrant of the intersection of James Monroe Highway (Route 15) and Rocky Meadow Lane (Route 9), at 42353 Rocky Meadow Lane, Leesburg, VA.

CWS is a tower developer for wireless infrastructure and offers co-location opportunities for eligible wireless carriers such as cellular, PCS, paging, and backhaul providers. CWS has submitted a letter of interest from Verizon Wireless ("VZW"), Fibertower Corporation ("Fibertower"), and Mobile Satellite Ventures ("MSV"). Verizon Wireless is a FCC licensed telecommunications provider authorized and mandated to provide wireless communications services to the Loudoun County area. Fibertower is a wireless backhaul provider currently doing a network design in Loudoun County. MSV is currently designing a network for the Washington DC market in preparation for offering a new wireless service.

This report outlines the specific areas of evaluation with respect to this proposal, and this consultant's recommendations regarding the Application package as presented. Supporting and clarifying evidence regarding the suitability of the proposed design in meeting the specified coverage goals is also included.

It is the opinion of this Consultant that the pending Nextel-Rockland Farm application proposing an 85' silo is superior to this proposed site application. See Section 3.0 "Recommendations" of this document for additional details.

George N. Condyles, IV President and COO

Atlantic Technology Consultants, Inc.

George N. Condyles IV

#### 1.0 TECHNICAL:

#### 1.1 Siting

The proposed tower site is a 60' x 80' fenced compound on an approximately 4800 square foot portion of an 11.75 acre parent parcel. The property is zoned AR-1 (Agricultural Rural-1) and located on Tax Map 30 ((4)), Parcel 1 (MCPI # 183-30-6543). The proposed site, located North of Leesburg on the east side of James Monroe Highway (Route 15), can be accessed off of Rocky Meadow Lane and is physically located at coordinates N 39° 10' 6.01" and W 77° 32' 4.74" at a ground elevation of 230.719'.

The Applicant is proposing to construct two (2) 90' monopines disguised as evergreen pine trees with 4' lightning rods, which can accommodate up to three (3) co-locators on each monopine. The site compound could accommodate approximately 6-8 shelters or cabinets and could be accessed via a proposed 12' wide gravel access driveway.

#### Setback:

The tower complies with the County's setback requirement that "...towers shall be set back one (1) foot for every five (5) feet in height from the property line." [Loudoun County 1993 Zoning Ordinance, Section 5-618 (C) (3) (e)]. In other words, it is a 20% setback requirement. The Site Plan submitted with this Application shows the proposed 90' monopine setback from the nearest property line approximately 172', which is 191% of the height of the tower and greater than the ATC recommendation of 110%.

The nearest occupied dwelling to the monopine is approximately 350'. Upon review of the Applicant's site plans, it appears that the proposed monopine site cannot be moved within the property to meet ATC's recommended setback of 750' from the nearest residence.

#### Geotechnical:

The proposed tower site location is in a limestone conglomerate area, a karst geology that is highly susceptible to rock outcrops, solution channels, and sinkholes. The County is strongly recommending a geophysical analysis be performed prior to special exception approval.

Under Loudoun County's August 22, 2007 "Conditions of Approval" item condition number 6 indicates:

"As part of the initial submittal of a site plan application for this development, the applicant will submit a geotechnical and geophysical analysis of the development site, consistent with

standards in Chapter 6 of the Facilities Standards Manual. The analysis will be sealed by a certified professional engineer with experience in geophysical analysis."

#### Landscape Buffer:

The County is recommending an additional buffer to better screen the proposed monopines from adjoining properties and James Monroe Highway (Route 15), a designated Virginia Scenic Byway. According to the County, "Relocating and increasing the width of the tree save area will ensure that the existing trees will not be affected by future utility or road expansion, as well as providing a better dispersion of trees in the event that dead, damaged, dying, or diseased trees are removed from the buffer." (Page A-18, April 19, 2007 Memorandum)

Under Loudoun County's August 22, 2007 "Conditions of Approval" item condition number 7 indicates:

"The applicant shall utilize existing mature vegetation along James Monroe Highway (Route 15) to create a 100-foot Landscape Buffer which shall be designated as a Tree Conservation Area (TCA) in the location shown on the Special Exception plat. The TCA shall be inspected annually by a certified arborist for potential disease and insect damage for the duration of the commercial public telecommunication use and these reports shall be submitted to the County. The applicant and property owner reserves the right to remove, in consultation with the County Urban Forester, any dead, damaged, dying or diseased trees and vegetation in the TCA. The Applicant shall maintain TCA equivalent to or greater than the required Type IV Buffer Yard with a minimum width of 100-feet."

#### Co-Location:

While co-location is preferable to construction of a new site, with such co-location minimizing visual impact of telecommunications equipment on the surrounding area, there are currently no existing structures within a 2-mile radius on which to co-locate. The nearest telecommunications facility is 3 ½ miles to the north (Lucketts Fire Station) and 3 miles to the south (Town of Leesburg). CWS has designed the two (2) monopines to accommodate up to three (3) co-locations each for a total of six (6) co-locations. The silo at Rockland Farm would accommodate 3 PCS carriers amongst other wireless carriers. If this site was approved, it would only be the recommendation that only one (1) monopole be approved.

#### 1.2 Structural

The two (2) proposed 90' monopine tower designs shall consist of high strength steel and shall be in full compliance of the EIA/TIA-222-F guidelines (the accepted industry standard) for structures, which is mandated to withstand the structural loading of all appurtenances, plus additional wind and ice loading.

Structural drawings of the monopines signed/sealed by a Professional Engineer licensed in the Commonwealth of Virginia demonstrating the towers' ability to structurally accommodate the antennae and associated appurtenances of three (3) co-locations, while complying with all applicable construction and loading standards, guidelines, and codes has NOT been submitted with the Application.

Furthermore, in conformance with County ordinance, work at this site will remain in compliance with ALL federal, state, and local building codes and regulations if work proceeds as outlined in the application.

#### 1.3 RF Exposure

FCC bulletin OET-65 provides guidance for a licensee proposing to construct a telecommunications support structure in calculation of RF exposure limitations, including analysis of the cumulative effect of all transmitters on the structure. Appropriate steps, including warning signage at the site, must be taken to protect both the general public and site workers from unsafe RF exposure in accordance with federal guidelines.

A RF Analysis Report has not been submitted with the Application. In consideration of this proposal to construct two (2) monopines in close proximity to one another within the same compound, a certified RF Analysis Report is recommended.

RF site exposure warning signage placement shall be appropriately planned for this site.

#### 1.4 Grounding

Grounding of all structures and equipment at an RF site is critically important to the safety of both personnel and equipment at the site. Even a single component not meeting this standard places all other site components at risk for substantial damage. All structures and equipment at the site should maintain a ground potential difference of less than 5 ohms.

A grounding plan was not submitted with this Application.

#### 1.5 General Safety

The 60'x80' site compound will be surrounded by suitable seven (7) foot security fence with one (1) foot of barbed wire to prevent unauthorized access to the tower.

Additional safety measures to be placed at this site include RF exposure warning signage, site identification information, and routine and emergency contact information and FCC Registration number.

The Permit Plans should include the installation of an OSHA-approved style of fall prevention cable.

#### 1.6 Interference

An interference study, taking into account all proximally located transmitters and receivers known to be active in the area, is advisable prior to any new tower construction. A full interference study has not been included with the Applicant's design, and therefore it is assumed that such a study has not been performed due to any other carriers pursuing this site. Once carriers apply to co-locate, then the site manager will be required to perform this study.

Should any interference issues be posed with respect to this site, mitigation would nevertheless remain the responsibility of the tower owner and affected carrier(s), and would be regulated by the Federal Communication Commission, having no effect or burden on the County.

# 2.0 PROCEDUREAL

#### 2.1 FAA Study

An initial search was performed by this consultant via TOWAIR Determination under the ASR online system on the FCC website to determine if registration is required. The TOWAIR determination results were as follows:

"Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided."

#### 2.2 FCC Antenna Site Registration

This site does not yet have, nor is it required to have, an antenna site registration number. For both routine and emergency identification purposes, however, it is recommended that this site be registered with the Federal Communication

Commission. All registered sites should have their registration number conspicuously displayed at the site which is normally on the security fence surrounding the compound area.

#### 2.3 Environmental Impacts

The National Environmental Policy Act of 1969 (NEPA), delineated in Title 47 of the Code of Federal Regulations, Part 1, Subpart I, sections 1.1301-1.1319, requires federal agencies to incorporate environmental considerations into their decision-making process when evaluating new construction proposals. As a licensing agency, the Federal Communication Commission (FCC) requires all licensees to consider the potential environmental effects from their construction of antenna support structures, and to disclose those effects in an Environmental Assessment (EA) that must be filed with the FCC for review.

A NEPA Phase I Evaluation dated August 27, 2007 and prepared by Baxter Consultants, Inc. has been submitted with the Application that indicates NO IMPACT. Upon review of correspondence with consulting agencies, this Consultant did not note any references indicating an impact.

A NEPA Phase I Report should include the following items:

- NEPA Checklist
- NEPA Summary Report
- Associated documentation
  - o Figures, Drawings, Maps
  - Tribal Correspondence
  - Land Resources Map and FEMA Floodplain Map
  - SHPO Correspondence (See next Section 2.4 "Historic Impacts)
  - o Department of Game and Inland Fisheries Response
  - o Department of Conservation and Recreation Response

The NEPA Phase I Assessment is a report that is submitted to the FCC only if requested by the FCC. Otherwise, it shall be reviewed by the appropriate locality for which the proposed tower site is being considered for approval.

#### 2.4 Historic Impacts

Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires that State Historic Preservation Offices (SHPO) and the President's Advisory Council on Historic Preservation be given a reasonable opportunity to comment on all undertakings with the potential to affect historic properties. The licensee is required to submit to the SHPO a detailed description of the project, a listing of local historic resources, and a discussion of any measures being undertaken to

mitigate impacts (if any) on historic resources. Upon receipt, the SHPO has thirty (30) days to review and respond to those submissions. All agencies with authority to permit construction are required to consider the SHPO response in its decision making process with respect to new construction applications.

A response dated August 7, 2006 (NOTE: the year should be 2007) from the Virginia Department of Historic Resources (VDHR) was submitted with the Application. VDHR's response is the following:

"...it is our opinion that the construction of the two monopine stealth towers at the height of ninety feet will have no adverse effect upon Macaria (DHR 053-0294) and the Catoctin Rural Historic District (DHR 053-0012)."

#### 2.5 Supporting Documentation

The Applicant did include documentation supporting the construction of the proposed site in the form of propagation mapping. RF coverage maps from Verizon Wireless showing their wireless coverage with and without the proposed CWS site was submitted.

An independent RF analysis has been performed by this consultant, with a coverage map appended to this report, verifying that the applicant will be able to meet their stated coverage objectives to provide the wireless coverage necessary to alleviate the lack of coverage encountered in this area.

Supporting documentation in the form of photo-simulation was submitted with the Application. This Consultant believes the photo-sims are an accurate representation of the monopines from various locations, including historic property, surrounding the proposed site.

#### 2.6 Pending Nextel – Rockland Farm Application

Another site being considered for approval in this same area is an 85' stealth silo being proposed by Nextel to be constructed on a 2,400 square foot lease area on Rockland Farm. The proposed site would be located approximately 500 feet east of James Monroe Highway (Route 15) in the northwest portion of an approximately 485.75-acre tract approximately 0.9 mile north of intersection of Whites Ferry Road (Route 655) at 16306 Rockland Lane, Leesburg. The Nextel Application was submitted prior to CWS' Application.

#### 3.0 RECOMMENDATIONS

This application is redundant to the Rockland Farm Application. It should be denied on this bases and the fact of the 750' setback from a nearest residence can not be accomplished along with the fact that the Nextel silo is less obtrusive.

If this tower is approved, it should be only approved with one (1) 90' monopine tower.

- A geotechnical and geophysical analysis of the development site;
- Structural Drawings;
- Grounding specifications;
- An interference study;

In addition, the County should consider the setback issue previously mentioned in Section 1.1. The 90' monopine cannot meet a 750' setback from the nearest residence on this property.

It is the opinion of this Consultant that the pending Nextel-Rockland Farm application proposing an 85' silo is superior to this proposed site application. However, if the County chooses to approve this Application, then ATC recommends only one 90' monopine should be considered for approval for this Application.

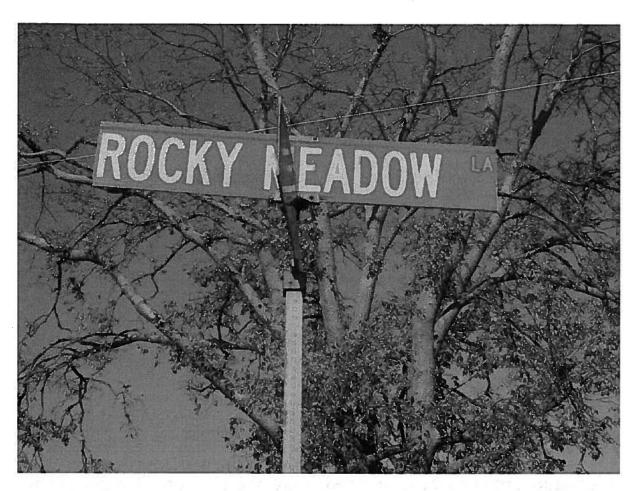
In closing, this consultant remains available to address any comments or questions which may arise after review of this report. Any interested party with such comments or questions may feel free to contact this firm, which remains committed to delivering independent, objective, unbiased, and thorough consulting services.

Respectfully submitted,

George N. Condyles, IV

George N. Condyles IV

President & COO



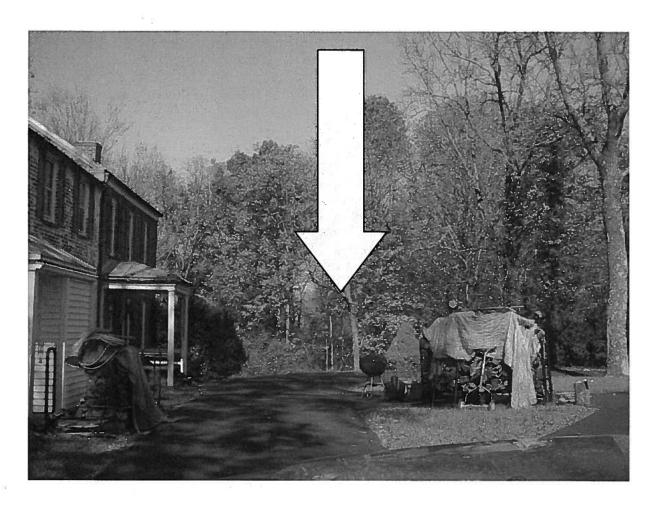
**Street of Tower Location** 



**Rocky Meadow Lane** 



**Access from Rocky Meadow Lane** 

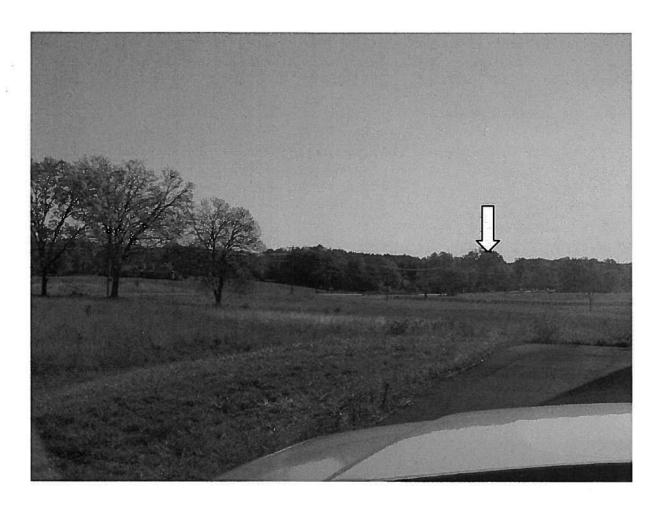


Nearest Off Site Residence to the South This Residence will have a view of the monopines



**On Site Residence** 

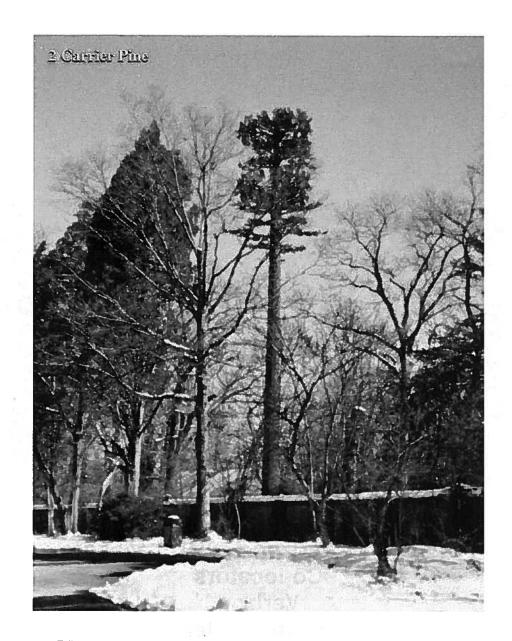
Tower less than 400' from house.



**View from the West of Pine Buffer** 



**View from Across the Street** 



**Mono Pine Located @ Mount Vernon** 



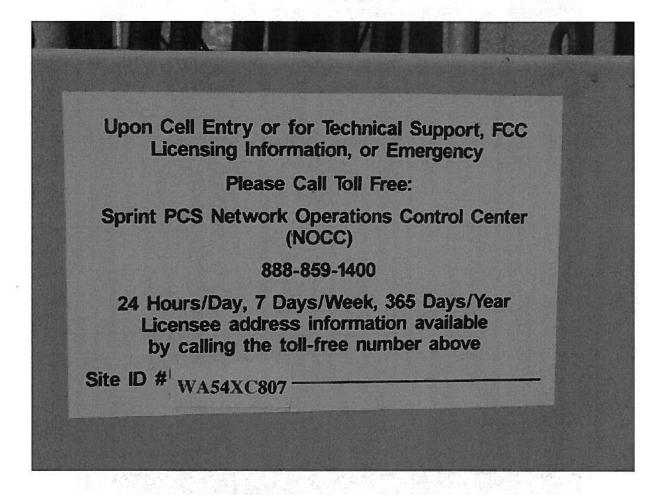
LOU-033 – Verizon Tower- Leesburg
Co-locators
Verizon
Sprint/Nextel
T-Mobile
Cingular
Etc.

**Hand-off Site** 



**Crown-Luckett's** Verizon Sprint/Nextel T-Mobile Cingular Cell One **Fiber Tower** 

**Hand-off Site** 



# Sprint/Nextel @ Luckett's Tower



FCC Home | Search | Updates | E-Filing | Initiatives | For Consumers | Find People



#### **Antenna Structure Registration**

FCC > WTB > ASR > Online Systems > TOWAIR

FCC Site Map

#### **TOWAIR Determination Results**

? HELP



#### \*\*\* NOTICE \*\*\*

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

#### **DETERMINATION Results**

Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.

#### **Your Specifications**

#### **NAD83 Coordinates**

Latitude	39-10-06.0 north
Longitude	077-32-04.7 west
KAULDU, J. L. PARUEL IN	

## Measurements (Meters)

Overall Structure Height (AGL)	28.7
Support Structure Height (AGL)	27.4
Site Elevation (AMSL)	70.3

#### Structure Type

TOWER - Free standing or Guyed Structure used for Communications Purposes

#### **Tower Construction Notification**

Notify Tribes and Historic Preservation Officers of your plans to build a tower. Note: Notification does NOT replace Section 106 Consultation.

**ASR Help** 

ASR License Glossary - FAO - Online Help - Documentation - Technical Support

ASR Online Systems TOWAIR- CORES - ASR Online Filing - Application Search - Registration Search

**About ASR** 

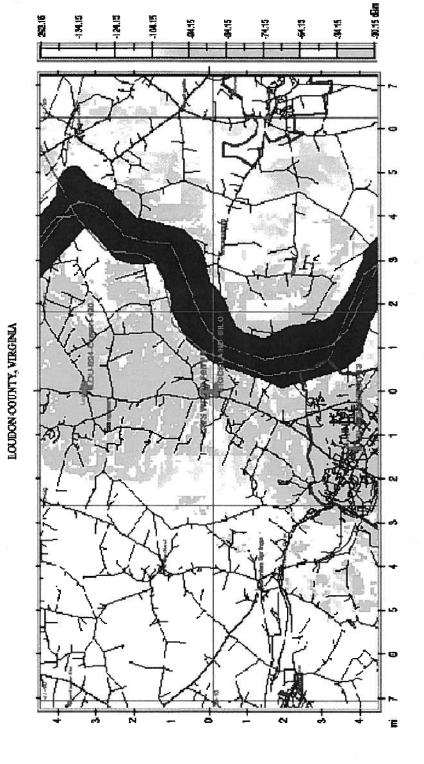
Privacy Statement - About ASR - ASR Home

FCC | Wireless | ULS | CORES

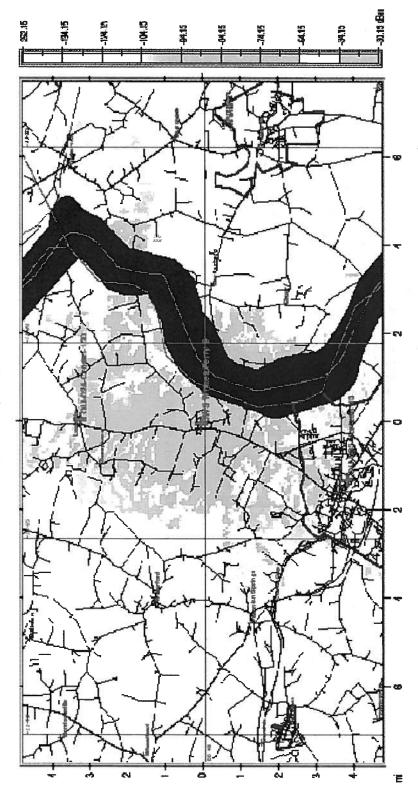
Help | Tech Support

Federal Communications Commission 445 12th Street SW

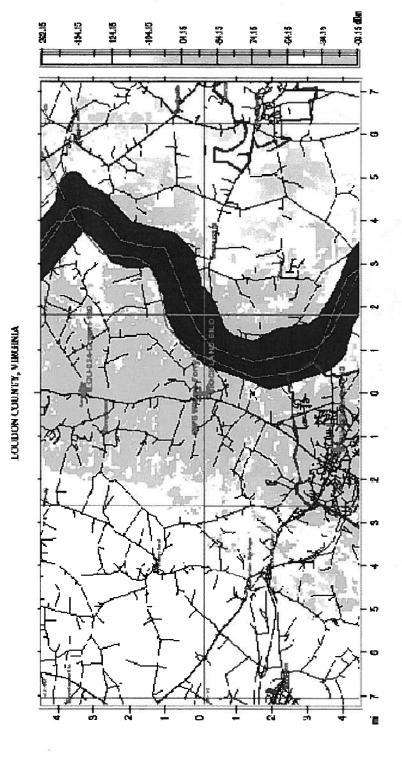
Phone: 1-877-480-3201 TTY: 1-717-338-2824



LOU-033 & LOU-024



CWS-XV" ACIL.



LOU-033 & LOU-024 & WHITHS HERRY